

## Karakteristik lindi TPA Cipayung dan dampak efluen lindi terhadap kualitas air Sungai Pesanggrahan = Characterization of leachate from Cipayung Landfill and leachate effluent impact on water quality of Pesanggrahan River

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### Abstrak

Pengoperasian TPA dapat menimbulkan permasalahan lingkungan akibat dekomposisi sampah berupa produksi lindi. TPA Cipayung memiliki instalasi pengolahan lindi menggunakan kolam stabilisasi dengan Sungai Pesanggrahan sebagai badan air penerima. Pemeriksaan kualitas lindi dan air sungai diperlukan untuk memastikan pembuangan lindi ke badan air telah memenuhi baku mutu. Karakteristik lindi bersifat fluktuatif dengan temperatur antara 33,8oC ndash; 36,4oC, konsentrasi TSS sebesar 70mg/L- 75mg/L, nilai pH 7,8 ndash; 7,9, BOD 2.874,0mg/L - 4.826mg/L, COD 4.586,4mg/L- 8.937,6mg/L, Total Nitrogen 280mg/L- 466,7mg/L, dan logam berat Merkuri 0,0008mg/L- 0,0032mg/L, serta Kadmium di bawah 0,001mg/L. Efluen Instalasi Pengolahan Lindi belum memenuhi baku mutu lindi sehingga perlu dilakukan evaluasi terhadap unit pengolahan. Hasil evaluasi desain unit Instalasi Pengolahan Lindi TPA Cipayung menunjukkan bahwa desain kolam anaerobik, kolam fakultatif, dan kolam maturasi tidak memenuhi kriteria desain sehingga diperlukan desain perbaikan. Efluen lindi IPL TPA Cipayung mempengaruhi kualitas Sungai Pesanggrahan berdasarkan kenaikan konsentrasi parameter BOD, COD, dan Total Nitrogen, serta penurunan konsentrasi DO. Analisis statistik Korelasi Pearson menunjukkan keterkaitan antara parameter kualitas lindi COD dan TN  $r = -0,997$ , p.

.....Operation of landfill caused environmental problems by waste decomposition in the form of leachate production. Cipayung Landfill has leachate treatment plant using stabilization pond with Pesanggrahan River as recipient water body. Examination of leachate and water quality of Pesanggrahan River is needed to ensure that leachate discharge to water bodies does not exceed the standard limit. The characteristics of leachate are fluctuated with temperature ranged from 33,8oC ndash 36,4oC, concentration of TSS 70mg L 75mg L, pH 7,8 to 7,9, BOD 2.874mg L 4.826mg L, COD 4.586,4mg L 8.937,6mg L, Total Nitrogen 280mg L 466,7mg L, and heavy metals Mercury 0,0008mg L 0,0032mg L, while Cadmium below 0,001mg L. Effluent of leachate exceeded the leachate standard limit, and need to be evaluated. The result of design evaluation shows that the anaerobic pond, facultative pond, and maturation pond design do not meet design criteria, and design improvement is needed. Leachate effluent of Cipayung Landfill affect the quality of Pesanggrahan River based on the increased of BOD, COD, and Total Nitrogen concentration, and decreased of DO. Statistical analysis Pearson Correlation showed correlation between leachate quality parameter COD and TN  $r = 0,997$ , p